ABSTRACT OF THE DISCLOSURE

In automatically configuring network-layer addresses for network nodes in a network region, a specified router on each link generates link number request messages for the link. An address-assigning node assigns a region-wise unique link number to each link identified in a request message, and returns link number assignment messages containing the assigned link numbers. Each specified router assigns the link number from a received link number assignment message to a field of the network-layer addresses of the nodes on the associated link. According to a variation of the method, each specified router self-selects a link number and communicates with the other specified routers to avoid conflicts. Each specified router receives messages from the other specified routers containing numbers selected as region-wise unique link numbers for other links. Each specified router stores the received link numbers in association with the respective links in a local database. To configure a link number for the local link, a specified router selects a candidate region-wise unique link number not already associated with another link in the local database, generates a message containing the selected number, and propagates the message within the network region. Each specified router monitors the messages to detect when another specified router has selected the same link number. When this occurs, the specified router evaluates a conflict-resolution criterion to determine which router is entitled to keep a duplicate link number, and selects a new link number if necessary.

216027_1